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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,740	11/15/2001	Huping Zhang	CS-46-011115	7458

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EXAMINER

SHAAWAT, MUSSA

ART UNIT PAPER NUMBER

2128

DATE MAILED: 04/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/987,740	Applicant(s) ZHANG ET AL.	
	Examiner Mussa A Shaawat	Art Unit 2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/15/01, 12/10/04</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. This action is responsive to Application # 09/987,740, filed on November 15, 2001. Claims 1-4 are presented for examination.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by "PneuSim Pro, May 12, 2000, Famic Technologies Inc., Product Specification", referred to hereinafter as *PneuSim Pro*.

As per claim 1, *PneuSim Pro* teaches a means for simulating and displaying the result of a pneumatic device, which includes pneumatic cylinder, solenoid valve, and pneumatic tubes for connecting therebetween, see *PneuSim Pro* (Page 4 sections "pneumatic manifold library, and new pneumatic cylinder configurator").

PneuSim Pro teaches means for inputting a piston area of a head-end chamber of pneumatic cylinder, an effective area of a head-end and rod-end of tube passage of pneumatic cylinder based on the effective area of the solenoid valve, and it inherently teaches an effective area during a free flow and a controlled flow of speed controller see

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PneuSim Pro (page 4 section "new pneumatic cylinder configurator" *PneuSim Pro* allows user to choose the cylinder type, rod type, magnetic or non-magnetic piston, with or without spring, cushion, ports & blocking etc., from the pneumatic actuator configuration dialog window).

PneuSim Pro inherently teaches necessary means for calculating by simulation a stroke time of piston, velocity of a piston, area of piston rod-end chamber and head-end chamber, speed controller of pneumatic cylinder and tubes for connecting there between, see *PneuSim Pro* (page 3 section "improved simulation" *PneuSim Pro* allows user to build circuits that will calculate the stroke time of the piston, velocity, pressure etc., also this software helps designers troubleshoot complex pneumatic logic circuits prior to implementation, also see page 4, section "pneumatic manifold library, and new pneumatic cylinder configurator").

PneuSim Pro teaches means for displaying in a superimposed manner on a display window, the result of calculation of the stroke time, velocity, area of the head-end chamber etc., of the piston, see *PneuSim Pro* (pages 3-4, multiple parameters related to the calculation the pneumatic cylinder and images are displayed in a superimposed manner).

As per claim 2, *PneuSim Pro* inherently teaches necessary means to calculate a change of mass flow of air flowing into head-end chamber of pneumatic cylinder based on the movement of the piston, volume change based on mass flow, a pressure change based on volume change, an acceleration change of piston based on pressure change, and velocity and displacement of the piston from the acceleration, see

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PneuSim Pro (page 3 section "Improved simulation", shows circuit diagram that shows calculation means of piston parameter, such as different types of pressure based on volume change which is calculated by simulating the movement of the piston in and out of the head-end chamber and air flow due to the movement of the piston).

As per claim 3, *PneuSim Pro* inherently teaches necessary means to calculate a change of mass flow of air flowing out of the rod-end chamber of pneumatic cylinder based on the movement of the piston, volume change based on mass flow, a pressure change based on volume change, an acceleration change of piston based on pressure change, and velocity and displacement of the piston from the acceleration, see *PneuSim Pro* (page 3 section "Improved simulation", shows circuit diagram that shows calculation means of piston parameter, such as different types of pressure based on volume change which is calculated by simulating the movement of the piston in and out of the head-end chamber and air flow due to the movement of the piston).

As per claim 4, *PneuSim Pro* teaches a record of displayed result of the simulation of the pneumatic device, which includes data of the stroke time of the piston, velocity of the piston for each load rates, speed controller of the pneumatic cylinder, etc., in a superimposed manner, see *PneuSim Pro* (pages 2-5, shows windows displaying in a superimposed manner circuit diagrams of the simulation of the pneumatic device).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Muller US Patent No. (5,433,125) Gear shift mechanism of a motor vehicle transmission.
- Lisec et al. US Patent No. (6,129,002) Valve arrangement, especially for a pneumatic control system.
- Vondermnau et al. US Patent No. (4,696,264) Two-stroke engine.
- Yukio Terashima, Yukio kawkami, Tsuyoshi Arinaga, Sunao Kawai, "An Approach for Energy-saving of Pneumatic Cylinder by Meter-in Circuit", May 16, 2000, School of Science and Engineering, Waseda University Tokyo Japan., Pages 1-7.
- R.Richardson, A.R. Plumemr, M.Brown, "Modelling and simulation of Pneumatic cylinders for a physiotherapy robot", January 2000, School of mechanical Engineering, University of Leeds, UK.
- S.J.M. Cartaxo and S.C.S. Rocha, "Object-oriented simulation of pneumatic conveying application to a turbulent flow", August 22, 1999, Brazilian Journal of Chemical Engineering, Pages 1-14.

Communication

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mussa A Shaawat whose telephone number is (571)

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272-3785. The examiner can normally be reached on Monday-Friday (8:30am to 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jean R Homere can be reached on (571) 272-3780. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application should be directed to the **TC 2100 Group receptionist: 571-272-2100**.

Mussa Shaawat
Patent Examiner
March 28, 2005

JEAN R. HOMERE
PRIMARY EXAMINER